

Clean Water State Revolving Fund Green Project Reserve
- Final -



City of Rockland Wastewater Project
SRF Loan #WW 1206
\$3,000,000

Final Green Project Reserve Justification

Business Case GPR Documentation

INSTALLS NEW ENERGY-EFFICIENT MOTOR ON IRRIGATION STATION PUMP (Energy Efficiency). Business Case per GPR 3.2-2 & 3.4.1: *if a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case; project must be cost effective...energy savings and payback on capital and operation and maintenance costs [must] not exceed the useful life of the asset (\$5,000).*

NEW PUMPS AND MOTORS (INTERIM)¹

Summary

The land application irrigation pump will be equipped with a premium high efficiency motor to conserve energy and enhance the operability of the land application process.

- Funding = Approved \$3,000,000 SRF loan
- New energy efficient pumps = \$5,000
- Estimated Categorical energy efficiency (green) portion of loan = \$5,000 (<1%)

Background

- The land application irrigation pump will be equipped with a premium high efficiency motor to conserve energy and enhance the operability of the land application process. A VFD will not be installed for the irrigation pump since it will run at a constant speed while the irrigation pivot will vary the speed at which it moves.

Calculated Energy Efficiency Improvements

- The irrigation Pump will be installed with a premium high efficiency 20 Hp motor (92.5% efficient) @ \$5,000.
- A standard efficiency 20 Hp motor (88.5% efficient) would typically be 15 to 30 percent lower in cost than a premium efficient motor = \$4,250².
- If the irrigation pump runs for 1,100 hours per year the following savings can be realized:
Energy Savings = 14.92 kW x 1,100 hrs/yr x (1 - (0.885 / 0.925)) = 794.1 kWh/yr = @ \$0.12/kWh = \$86/yr
- At \$86/year energy saving utilizing a premium efficiency motor, the payback period for the cost differential between a typical standard efficiency and premium efficiency motor (\$750) would be $\$750/86 = 8.8$ years.

Conclusion

- The motor for the irrigation pump is GPR-eligible as using a high efficiency motor is cost effective i.e. the payback period of 8.8 years is less than the useful life of the asset.
- **GPR Costs:** New premium energy efficient motor = \$5,000.
- **GPR Justification:** Motor is Business Case GPR-eligible by Section 3.2-2 and 3.4-1³: : *if a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case; project must be cost effective...energy savings and payback on capital and operation and maintenance costs [must] not exceed the useful life of the asset (\$5,000).*



¹ 7/27/13 Interim GPR Justification, M. Jaglowski P.E., Keller Associates

² Page V. Energy Efficient Motor Selection Handbook, Washington State Energy Office

³ Attachment 2. April 21, 2010 EPA Guidance for Determining Project Eligibility. Page 9.